

**NON-PROVISIONAL PATENT APPLICATION OF  
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FOR**

A complete solid composit, insulating, fireproofing and protective roofing system, which is generally installed onto any structurally sound, new or existing roof deck material or intermediate material such as existing roofing material or rigid foam insulation board. This system can be installed onto a flat and/or any incline, up to a straight vertical surface and or any shape surface, i.e, curved, round, stepped, flat, sloped, etc.

This composit system is composed of three (3) specific materials which is installed at the structure sight or pre-constructed at a different sight and then installed at the structure sight.

**The three specific materials employed in this system are:**

1.) A rubber like, fluid applied waterproofing and/or adhesive type coating. The typical wet characteristics of this coating shall be fluid applicable, at a viscosity suitable to achieve this step.

The cured, typical characteristics shall be :

- a.) Elongation 200 - 800%
- b.) Durometer (Die-C) 20 - 80
- c.) Non-Permeable
- d.) Self Adhering

2.) A reinforcement medium, constructed of either plastic or natural fibers, which when embedded into a film of elastomeric coating shall become totally adhered lay smooth and wrinkle free. This medium shall be sufficiently strong enough to hold a light weight concrete in place, i.e., Tuff-Con, cellular concrete, perlite concrete, etc.

3.) Tuff-Con, protective surface type insulation, light-weight concrete or other concrete type surfacing. Protective surfacing maybe applied from one sixteenth (1/16) inch to three (3) inches thick, shall be hand or spray applied and adhere to the reinforcement medium and shall be sufficiently strong enough to support occasional pedestrian traffic, resist UV and ozone degradation winds uplift, damage from rain, hail, and other dropped objects, fire and provide insulation valves by resisting heat build up and/or absorption.

#### **OPERATION:**

This complete system is installed directly onto virtually all substrate materials, provide complete waterproofing and insulation. Being this system is primarily fluid applied it maybe installed onto virtually any build-up shape, over any thickness of rigid insulating foam; straight flat, stepped or shingled design. The thickness of any insulation foam, base shall provide the insulation valve desired, and/or required.

## **DRAWINGS:**

- Fig.1** Is this system installed onto either wood, concrete or existing roofing material substrate.
- Fig.2** Is this system installed onto an intermediate rigid foam substrate base surface. The rigid foam is installed onto Tuff-Con filled metal deck flutes, however the foam may also mechanically attached directly to the metal deck. The installed rigid foam insulation become the base for receipt of this system.
- Fig.3** Is this system installed onto previously installed rigid foam insulation base.
- Fig.4** Is this system installed onto rigid foam insulation base which has been fabricated into a shingle design and installed onto properly sloped roof deck substrates.
- Fig.5** Is this system applied onto shingle shaped rigid foam insulation shingle. The completed shingle is then installed onto properly sloped roof deck substrates.

## **SUMMARY:**

This complete composit roofing system has utilized many new and/or improved materials, and have incorporated them into new designs to provide many of the positive attributes of most present day roof systems and eliminate the negative functions, as follows:

A.) The overall weight of this system has been held to the lightest factor of present day systems through the employment of thin-set elastomers, plastic reinforcement and lightweight Tuff-Con cement and perlite based protective surfacing.

B.) The fire resistance of this system is equal to or is far superior to other present day roof systems. Tuff-Con protective surfacing resists heat and/or heat build-up, reducing combustibility from heat. Tuff-Con resists flame, even the flame from a blow torch, resulting in eliminating the start up or spread of fire. Tuff-Con has been tested by Underwriter Laboratories, Inc., and has been approved, by them, as a UL Class "A" fire resistant system.

C.) As this system is a completely solid composit, eliminating any voids between the base and the surface, and the ability of the Tuff-Con to support limited pedestrian traffic; and the water/proofing membrane is located below the Tuff-Con, the waterproofing integrity is not affected from pedestrian traffic.

D.) For the same reasons as outlined in "C" Tuff-Con protects this system from the destructive effects of UV rays or ozone degradation; the destructive effects of natural elements such as, rain, hail, wind, sun, heat, dropped or flying objects, etc.

E.) Tuff-Con protective surfacing, because of its ability not to absorb and/or retain heat, roof surface heat is greatly reduced. Consequently less heat enters the structure, thus preventing interior structural materials to absorb or retain heat, and this combination greatly increase the ability of any interior insulation to function much better.

F.) The use of Tuff-Con protective surfacing requires virtually no maintenance, except for an occasional cleaning employing either air or water. However, if a new or different color is desired, Tuff-Con can be color coated with selected type coatings and colors.